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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/479,982	01/10/00	GAUDREAU M	DVS-007(2516

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EXAMINER	
RIOS CUEVAS,R	
ART UNIT	**PAPER NUMBER**
2836	

DATE MAILED: 03/23/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
09/479,982	Gaudreau et al.
Examiner	**Group Art Unit**
Roberto Rios	2836

☒ Responsive to communication(s) filed on *Jan 10, 2000*

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) *1-34* is/are pending in the applicat

Of the above, claim(s) _____ is/are withdrawn from consideration

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1-34* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☒ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____ .

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). *5*

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

Oath/Declaration

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because: Non-initialed and/or non-dated alterations have been made to the oath or declaration. See 37 CFR 1.52(c).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-18, 31, 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dassonville (US patent 4,370,607) in view of Traxler et al (US patent 4,916,599).

As per claim 1, Dassonville teaches a modulator comprising a plurality of transformers comprising a primary (LP) and a secondary winding, each secondary winding having an output terminal; and a plurality of switches (Q1j), each switch associated with a respective secondary winding and having an input and output terminals and a control terminal, the control terminal of each switch being in electrical communication with a respective output terminal of the plurality of secondary windings (Figure 2), wherein the plurality of switches are

substantially simultaneously switched by an input signal applied to the primary (col. 3, line 12+). Dassonville does not specifically disclose a single transformer comprising the primary winding and the plurality of secondary winding. However, Traxler et al (herein after Traxler) teach a switching circuit comprising a single pulse transformer comprising a primary winding and a plurality of secondary windings (Figure 4B; col. 8, line 48+).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to substitute Dassonville's pulse transformers by Traxler pulse transformer such that a single transformer comprises all the windings for the purpose of reducing the number of components. Furthermore, it is believed that using the single transformer embodiment would be a design choice based mostly on the switching system characteristics.

As per claim 2, Dassonville and Traxler teach the transformer comprising a toroidal core.

As per claim 3, Dassonville teaches the plurality of switches turning on and off at substantially the same time (col. 3, line 12+). Furthermore, the Examiner takes official notice that it is well known in the art to provide the secondary windings with the same wire length for the purpose of inducing substantially the same the voltage in said plurality of secondary windings.

As per claim 4, Traxler teaches the use of a ferrite core (col. 8, line 34).

As per claims 5-9, Dassonville teaches voltage limiters (D3j) connected in parallel with the switches across the input and output terminals of said switches (col. 2, line 57; Figure 2). Moreover, the Examiner takes official notice that all the

claimed voltage limiters are equivalent voltage limiting means well known in the art and thus, it would have been obvious to one skilled in the art to substitute Dassonville's voltage limiter with any of the claimed voltage limiters.

As per claims 10-12, Dassonville teaches the switches connected in series (Figure 2). However, the Examiner takes official notice that it is well known in the art to provide a switch configuration comprising a plurality of switches connected in parallel or series/parallel depending on the load's voltage/current capacity and the type of load to be switch.

As per claims 13 and 14, Dassonville teaches the switch comprising a thyristor or other equivalent semiconductor switch component (col. 2, line 5).

As per claims 15 and 16, Dassonville teaches a logic gate circuit (3) in electrical communication with an input of said primary winding and an output terminal at ground (Figure 2).

As per claims 17 and 18, Dassonville teaches a transformer comprising a single coil primary winding (Figure 2). However, the Examiner takes official notice that it is well known in the art to select the type of primary winding on a transformer based on a desired inductive/magnetic transformer behavior.

As per claim 31, Dassonville teaches a method of switching a signal comprising the steps of applying an input signal to a primary of a transformer; inducing a voltage in a plurality of secondary windings in response to the input signal; and switching substantially simultaneously, each of a plurality of switches that are electrically controlled by a respective one of the plurality of secondary windings, in response to the input signal. Dassonville does not

specifically disclose a single transformer comprising a primary winding and a plurality of secondary windings. However, Traxler et al (herein after Traxler) teach a switching circuit comprising a single pulse transformer comprising a primary winding and a plurality of secondary windings (Figure 4B; col. 8, line 48+).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to substitute Dassonville's pulse transformers by Traxler pulse transformer such that a single transformer comprises all the windings for the purpose of reducing the number of components. Furthermore, it is believed that using the single transformer embodiment would be a design choice based mostly on the switching system characteristics.

As per claim 33, Dassonville teaches the step of applying a reset input signal to the single primary winding (col. 3, line 12+).

As per claim 34, Dassonville teaches a modulator comprising a plurality of stacked transformers sharing the primary, wherein the primary comprises at least one winding and each transformer further comprises a secondary winding having an output terminal; a plurality of switches, each switch associated with a respective secondary winding and having input and output terminals and a control terminal, the control, terminal of each switch being in electrical communication with a respective output terminal of the plurality of secondary windings, wherein the plurality of switches are substantially simultaneously switched by an input signal applied to the primary. Dassonville does not specifically disclose each stacked transformer comprising a plurality of secondary

windings. However, the Examiner takes official notice that it is well known to provide a transformer with a single primary winding and a plurality of secondary windings based on the voltage/current capacity of the load to be switched.

4. Claims 19-30 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dassonville in view of Traxler and further in view of Kamei et al (US patent 5,089,719).

As per claim 19, Dassonville teaches all the limitations except the transformer comprising a single primary winding and a plurality of secondary windings and a plurality of retriggerable drive circuits electrically connected between said secondary drive windings and said switches. However, Traxler teaches a switching circuit comprising a single pulse transformer comprising a primary winding and a plurality of secondary windings (Figure 4B; col. 8, line 48+).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to substitute Dassonville's pulse transformers by Traxler pulse transformer such that a single transformer comprises all the windings for the purpose of reducing the number of components. Furthermore, it is believed that using the single transformer embodiment would be a design choice based mostly on the switching system characteristics.

Moreover, Kamei et al (herein after Kamei) teach a drive circuit for a semiconductor switch (27) comprising a retriggerable drive circuit (26) connected between a drive circuit and said semiconductor switch.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Dassonville and Kamei such that a retriggerable drive circuits is electrically connected between each secondary winding and each switch for the purpose of reducing the power losses in the system.

As per claims 20-23, Dassonville teaches the signal comprising a pulse with two different levels (i.e. low and high).

As per claims 24, Dassonville and Traxler teach the transformer comprising a toroidal core.

As per claim 25, Dassonville teaches a stack of modulators sharing the primary of the transformer (Figure 2).

As per claim 26, Dassonville teaches the secondary windings controlling a respective switch (Figure 2).

As per claims 27 and 28, Dassonville teaches the switch comprising a thyristor or other equivalent semiconductor switch component (col. 2, line 5).

As per claims 29 and 30, Kamei teaches the retriggerable drive circuit comprising a bipolar limiting means (26). Moreover, the Examiner takes official notice that the combination of a Zener diode and a FET perform the same limiting operation as the back-to-back Zener diodes.

As per claim 32, Kamei teaches using a bipolar limiting means (26) in a switch-driving configuration, wherein after the switch gate capacitance (27a) reaches the limiting voltage imposed by the driving voltage said driving voltage is no longer necessary to the turned on operation of the switch (col. 4, line 67+).

5. Art of general nature has been cited for applicant's review.

Gaudreau et al, Itani, Fitzgerald, Ross et al and Iyotani et al teach a switch drive circuit comprising a pulse transformer. Trica teaches the use of a retriggerable drive circuit for a switch actuation. Sylvester, Jr. et al and Engelmann teach the components of a transformer having primary and secondary windings.

Communication with PTO

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roberto Rios whose telephone number is (703) 306-5518. In the event that Examiner Rios cannot be reached, his supervisor, Josie Ballato may be contacted at (703) 308-0269. The fax phone number for this group is (703) 305-3432.

Josie Ballato
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3/20/01

Roberto J. Rios
Patent Examiner